

METHOD FOR POSTAGE EVIDENCING WITH CROSS-BORDER MAIL TRACKING
CAPABILITY AND NEAR REAL TIME FOR TERMINAL DUES RECONCILIATION

Cross Reference to Related Applications

[001] Reference is made to commonly assigned copending patent application Docket No. F-709 filed herewith entitled "Method For Postage Evidencing For The Payment Of Terminal Dues" in the names of Erik Monsen, Ian A. Siveyer, Marc Morelli, Yakup J. Igval, John C. Harmon and Ronald P. Sansone; and Docket No. F-729 filed herewith entitled "Method For Postage Evidencing For The Payment Of Terminal Dues Using Radio Frequency Identification Tags" in the names of Ronald P. Sansone and Erik Monsen.

Field of the Invention

[002] The invention relates generally to the field of mailing systems and, more particularly, to methods for paying terminal dues.

Background of the Invention

[003] The Universal Postal Union has a complex system that administers contracts between member post offices relating to terminal dues paid between and among different post offices. Terminal dues are the payments made between national postal administrations to cover the costs of handling and delivering international mail. Rates are established by the Universal Postal Union and through bilateral and multilateral agreements. Typically, a post office will charge another post office for the delivery of

mail to a recipient within its jurisdiction. For instance, if mail is sent from the United States to the United Kingdom, the United States post office will deliver the mail to the Royal Mail, and the Royal Mail will deliver the mail to the recipient. At the end of a predetermined time, the United States post office and the Royal Mail will tabulate, by weight, all of the mail each post office delivered for the other post office and calculate how much money one post office owes to the other post office.

[004] One of the disadvantages of the above procedure is that it does not accurately determine the services performed by each post office.

[005] An additional disadvantage of the prior art is that each post office was not sure that it was receiving the proper amount of money for the services it was performing.

[006] A further disadvantage of the prior art is that mail did not have an indication of the value of the services produced by different post offices.

Summary of the Invention

[007] This invention overcomes the disadvantages of the prior art by making it easier for various post offices to calculate accurately terminal dues by providing information to the post office regarding each piece or parcel of mail that crosses an international border. The invention also makes it easier for the post offices to calculate terminal dues by obtaining fee information from mail that is sent internationally.

[008] The foregoing processes are accomplished by placing an indication on the mail that the fees for delivering the mail have been paid or will be paid by a mailer to each Post office who handles the mail. For instance, if a mail piece is mailed in the United States and delivered to a destination in the United Kingdom, the mailer's postage meter will place a United States postal indicia on the mail piece for that portion of the delivery cost that is attributable to the United States post office and a Royal Mail postal indicia on the mail piece for that portion of the delivery cost that is attributable to the Royal Mail. The mailer's postage meter will also notify a data center located in the United States that the mail piece has been metered for the correct international mail values for mail being deposited in the United States and delivered in the United Kingdom. As the mail approaches the United States border, the face of the mail is scanned and interpreted, and the interpreted data is sent to a United States data center which transmits data to a United States meter payment data center that accumulates the United States postage payment for that meter and periodically sends the payments to the carrier's and/or post office bank. The United States meter data center also informs the Royal Mail meter data center of the future delivery of the previously metered mail to the United Kingdom along with a report of the amount of postage attributable to the Royal Mail and the unique identification that identifies the mail. When mail arrives in the United Kingdom, it is scanned so that the mail unique identification and amount of postage on the face of the mail will be interpreted and forwarded to the Royal mail data center. At the Royal Mail data center, the data will be stored and in turn forwarded to the Royal Mail meter payment data center, which notifies the Royal Mail to continue to deliver the mail to the recipient. The Royal Mail data center will inform the Royal Mail

payment center that the mail is in the United Kingdom, and that it will receive funds from the United States meter payment data center. The Royal Mail data center also informs the United States data center of the delivery of the mail piece, providing confirmation to the original mailer (sender), and also “closes the loop” between the two international post offices and the sender/recipient. The Royal Mail meter payment center accumulates funds and periodically sends the funds to the United Kingdom carrier bank and/or the Royal Mail bank.

[009] An advantage of this invention is that it provides more accurate reporting and checking of the amount of international mail. Thus, each post office receives the correct revenue for the amount of mail that it processes.

Brief Description of the Drawings

[010] Fig. 1A is a drawing of mail containing an example of United States post office postal indicia and an example of Royal Mail postal indicia;

[011] Fig. 1B is a drawing of mail containing a common carrier indicia and Royal Mail postal indicia;

[012] Fig. 1C is a drawing of mail containing a common carrier indicia and Royal Mail postal indicia;

[013] Fig. 2 is a block diagram illustrating the process of metering international mail so that terminal dues will be paid;

[014] Fig. 3 is a block diagram of postage meter 130 or personal computer meter 131 of Fig. 2;

[015] Fig. 4 is a drawing of the information stored in buffer 154A;

[016] Fig. 5 is a drawing of the information stored in buffer 166;

[017] Fig. 6 is a block diagram illustrating the process of the payment of terminal dues and delivery confirmation;

Detailed Description of the Preferred Embodiment

[018] Referring now to the drawings in detail, and more particularly to Fig. 1A, the reference character 21 represents mail, i.e., letter, flat, package, that has a recipient address field 22, a sender address field 23, United States postal indicia 20, and Royal Mail postal indicia 31. Indicia 20 includes the price for United States postage 24, the date 25 that indicia 20 was affixed to mail 21, the place 26 from which mail 21 was mailed, a postage meter number 27, an eagle 28, an international mail designation 29, a two-dimensional bar code 30, and a unique number 19. Royal Mail postal indicia 31 includes bar code 32, meter number 18, and the price of United Kingdom postage 17.

[019] Fig. 1B is a drawing of mail containing a common carrier indicia and Royal Mail postal indicia. This type of mail is used for mail that is deposited with a common carrier in the United States and delivered to the recipient by the Royal Mail in the United

Kingdom. Mail 41 may be a letter, flat, or package, etc. Mail 41 has a recipient address field 42, a sender address field 43, carrier indicia 44, carrier bar code 45, Royal Mail postal indicia 46 and unique identification code 50. Royal Mail postal indicia 46, includes bar code 47, meter number 18, the price of United Kingdom postage 49, and unique number 50.

[020] Fig. 1C is a drawing of mail containing a common carrier indicia and Royal Mail postal indicia. This type of mail is used for mail that is deposited with Royal Mail in the United Kingdom and delivered to the recipient by a carrier in the United States. Mail 51 may be a letter, flat, or package, etc. Mail 51 has a recipient address field 52, a sender address field 53, carrier indicia 54, carrier bar code 55, Royal Mail postal indicia 56 and unique identification code 60. Royal Mail postal indicia 56 includes bar code 57, meter number 88, the price of United Kingdom postage 59 and unique number 60.

[021] Fig. 2 is a block diagram illustrating the process of metering international mail so that terminal dues will be paid. Electronic postage meter 130 or personal computer meter 131 may be used to print indicia 20 and 31, bar codes 30 and 31 and unique number 18 (Fig. 1). During a communication between postage meter 130 or personal computer meter 131 with data center 132, it will be indicated that meter 130 or meter 131 printed indicia 20 and 31, bar codes 30 and 31 and unique number 18. Meters 130 and/or 131 will also transmit all of the information contained in indicators 20 and 40 to data center 132. Data center 132 will transmit the information contained in indicia 20 and 31, bar codes 30 and 31, and unique number 19 to mail records controller 133.

The operation of meters 130 and 131 will be described in the description of Fig. 3. Mail records controller 133 will transmit the information it receives from data center 132 to data base 102, where a record is created, capturing the issued unique number 19 for a particular meter 130 or 131 account number. The record is a proof of validity of postal indicia 20 and 31 having an issued unique number 19 for a particular meter, and the proof is provided when data base 102 is consulted.

[022] Postal terminal dues processor 140 is coupled to archive 108, national, international and terminal dues data base 141, finance 142, and archives 108 and 113. Processor 140 will poll archive 108 and archives 113 in other lands 111 (United Kingdom, France, German, Japan, etc.) and utilize data base 141 to determine the value of the mail processed by the receiving countries from the sending countries. Then processor 140 will determine how much money each country will receive for delivering mail 21. The amounts of money will be described in the description of Fig. 4. At agreed upon intervals, finance 142 will issue terminal dues statements to all participating countries and arrange for the transmission of funds to the countries' post offices.

[023] In step 104, the mail is collected and rated at various post office recording stations using data capture techniques and processed by the accepting post office in step 105. As part of the mail accepting procedures in step 105, indicia 20 and 31, bar codes 30 and 31 and unique number 19 are examined and compared to data in data base 102, to determine whether the indicia 20 and 31, bar codes 30 and 31 and unique number 19 used are legitimate. When unique number 19 is issued for postal indicia 20

and 31, the issuance of unique number 18 is reported to the "all issued indicia records national data base" 102, where a record is created, capturing the issued unique number 19 for a particular mailer account number. The record is a proof of validity of postal indicia 20 and 31 having an issued unique number for a particular mailer account number, and the proof is provided when data base 102 is consulted.

[024] In the acceptance process, a code reader is used to identify the unique number 18 and account number on indicia 20 and 31. It is understood that, if any portion of indicia 20 and 31, bar codes 30 and 31 and unique number 18 is produced with an invisible ink, a special light source will be needed to make the indicia 20 and 31, bar codes 30 and 31 and unique number 18 visible to the code reader. The identified indicia 20 and 31, bar codes 30 and 31 and unique number 19 is reported to data base 102 and a proof of validity of indicia 20 and 31, bar codes 30 and 31 and unique number 18 is requested. If data base 102 has a record showing the issuance of the unique number 19 for the particular meter account serial number used and that the unique number 19 has not been canceled, then indicia 20 and 31 are considered legitimate. In that case, indicia 20 and 31 have passed the verification process, and the mail is accepted for further processing, with indicia 20 and 31 being canceled in step 105. It is preferred that the cancellation mark is produced with a visible ink in a manner that a "canceled" postal indicator is easily distinguishable from an unused one, and that a "cancelled" postal indicator" will still be able to be read.

[025] When indicia 20 and 31 bearing a unique number 19 for a particular user meter account serial number are canceled in step 105, a request is made to data base 102 to alter the record that is specifically related to the unique number 19 being canceled. The altered record will contain the date and time of cancellation, the cost of the selected services derived from the weighing of the mail, and no longer provide a proof of validity when data base 102 is consulted. The cost for mailing the mail determined in step 105 will be charged to the mailer's meter 130 or 131. The mailer cost information will be transmitted to data center 132 via data base 102 and controller 133.

[026] However, if the acceptance procedures in step 105 fail to yield a proof of validity of indicia 20 and 31, the mail will be sent to rejected mail process 106 where the mail will be returned to the sender or placed in the dead mail file.

[027] The mail that step 105 determines has legitimate indicia 20 and 31 is sent to step 107 for internal sorting and routing from place to place. Step 107 will note the date and time the mail is at each step in the process. The foregoing information will be sent to archive 108. Then the physical mail is delivered nationally in step 109 or delivered internationally in step 110. Nationally, at the recipient's delivery post office, the mail will be scanned during the last sorting process where the date and time of sorting as well as other information identifying the mail, i.e., unique number 19, will be captured and stored in archive 108. At the last facility before the mail is transferred internationally in step 110, the mail will be scanned where the date and time of sorting as well as other

information identifying the mail, i.e., unique number, will be captured and stored in archive 108.

[028] At this point, the physical mail will be delivered to other lands 111. Then the mail will go to step 112 for sorting, routing and acceptance in the country that the recipient is located. Step 112 will note the date and time the mail is at each step in the process. The foregoing information will be sent to archive 113. Then the physical mail is delivered nationally in step 114. At the international recipient's delivery post office, the mail will be scanned during the last sorting process where the date and time of sorting as well as other information identifying the mail, i.e., unique number, will be captured and stored in archive 113.

[029] Fig. 3 is a block diagram of postage meter 130 or personal computer meter 131 of Fig. 2. The first step takes place at decision block 150. Decision block 150 determines whether or not the next mail is present. If block 150 determines that the next mail is not present, the next step will be step 162. Step 162 clears buffers 154A – 154E. If block 150 determines that the next mail is present, the next step will be step 151. Step 151 obtains all mail rating parameters, from the operator of meters 130 or 131 and/or another external source, i.e., how much does the mail weigh, the size of the mail, where is the mail going, what is the level of mail service, the contents of the mail, etc., and places the mail rating parameters in buffer 154A. Next, in step 153, the delivery location of the mail and the final carrier are obtained from the operator of meters 130 or 131 and/or another external source and stored in buffer 154A. Then in

step 155, all desired special services are obtained from the operator of meters 130 or 131. The data from step 155 is stored in buffer 154A. In step 156, the correct route and fees are verified with data center 132, i.e., the information obtained from buffer 154A is verified with remote data center 132.

[030] Step 165 stores the valid mail route and fees file and any new bar codes and indicia graphics it receives from data center 132, and then transmits the valid mail route and fees file and indicia graphics to buffer 166. Step 157 reads the valid mail route and fees file in buffer 166. Step 158 takes the valid mail route and fees file and computes and buffers all fees, carrier bar codes plus required indicia and special service graphics with buffers 154B, 154C and 154D, i.e., the total fee for mail 20 (Fig. 1A) would be \$4.70 with \$2.20 payable to the Royal Mail and \$2.50 going to the United States Postal Service. It would be obvious to one skilled in the art that the payment to the Royal Mail may be made in United States Dollars or United Kingdom currency at the prevailing exchange rate. Step 159 composes the full indicia in route, sequenced order and stores the above information in print buffer 154E. In step 160, the print image stored in buffer 154E is printed on mail 20, and then the image is sent to data center 132. The next step is performed by decision block 161. Decision block 161 determines whether or not the image has been printed on mail 20 and whether or not the image has been sent to data center 132. If the image has not been printed on mail 20 and the image has not been sent to data center 132, the process will go back to the input of decision block 161. If the image has been printed on mail 20 and the image has been sent to data

center 132, buffers 154A – 154E and 166 will be cleared and the next step will be performed by decision block 150.

[031] Fig. 4 is a drawing of the information stored in buffer 154A (Fig. 3) as buffered mail rating data elements 200. Item 201 indicates the mailer's identification, i.e., the mailer's postage meter serial number PB 1234567. Item 202 indicates the zip code in which the meter is registered, namely 06926. Item 203 indicates the code for the country of the first carrier, namely the United States. Item 204 indicates the code for the first carrier, namely the United States Postal Service. Item 205 indicates the service classification of the mail, namely first class mail. Item 206 indicates the special services requested code of the first carrier, for example the code for "track and trace". Examples of other special services are delivery confirmation, registered mail, certified mail, insured mail, collect on delivery, recorded delivery, special delivery, special handling, parcel airlift, business reply mail, return receipt for merchandise, return receipt, postal money order, restricted delivery, and recorded delivery, etc. Item 207 indicates the UPC code of the contents of the mail. Item 208 indicates the size of the mail, namely 4 X 6 X 2. Item 209 indicates the weight of the mail, namely 4 ounces. Item 210 indicates the code for the country of the second carrier, namely the United Kingdom. Item 211 indicates the second carrier, namely the Royal Mail. Item 212 indicates the special services requested code of the second carrier, namely the code for "track and trace". Item 213 indicates the total payment that is going to be charged to the meter.

[032] Fig. 5 is a drawing of the information stored in buffer 166 as buffered mail route data elements 220. Item 221 indicates the code for the country of the first carrier, namely the United States. Item 222 indicates the code for the first carrier, namely the United States Postal Service. Item 223 indicates part of the amount of United States postage. Item 224 indicates the special services requested code of the first carrier, namely the code for "track and trace". Item 225 indicates the special services fee of the first carrier, namely \$0.50. Item 226 indicates the amount of United States postage, namely \$2.50. Item 227 indicates the code for the country of the second carrier, namely the United Kingdom. Item 228 indicates the second carrier, namely the Royal Mail. Item 229 indicates the special services requested code of the second carrier, namely the code for "track and trace". Item 230 indicates the fee for track and trace charged by the second carrier namely, \$1.00. Item 231 indicates the terminal dues process and delivery fee of \$1.20. Item 232 indicates the amount of United Kingdom postage, namely \$2.20.

[033] Fig. 6 is a block diagram illustrating the process of the payment of terminal dues. When a mail piece is mailed in the United States and delivered to a destination in the United Kingdom, the mailer's postage meter 130, 131 will place a United States Postal Indicia 20 (Fig. 1A) on mail 21 for that portion of the delivery cost that is attributable to the United States post office and a Royal Mail postal indicia 31 (Fig. 1A) on the mail 21 for that portion of the delivery cost that is attributable to the Royal Mail. Meter 130, 131 will also notify remote data center 132 that is located in the United States that the mail piece has been metered for the correct international mail values for mail being

deposited in the United States and delivered in the United Kingdom. Mail 21 will be sorted and routed by the United States Postal Service in block 107. As the mail approaches the United States border 173, the face of mail 31 is scanned and interpreted by carrier scanner 178, and the interpreted data is sent to a United States remote data center 132 which transmits data to a United States meter payment data center 170 that accumulates the United States postage payment for that meter and periodically sends the payments to the carrier's bank 171 and/or the United States post office bank 172. The United States remote meter data center 132 also informs the Royal Mail meter data center 184 of the future delivery of the previously metered mail 21 to the United Kingdom along with a report of the amount of postage attributable to the Royal Mail and the unique identification number or code 18 (Fig. 1A), 50 (Fig. 1B), 60 (Fig. 1C) that identifies the mail. When mail arrives in the United Kingdom it is scanned at post entry scan 180 so that the mail unique identification number or code 19, 50, 60 and amount of postage on the face of the mail will be interpreted and forwarded to the Royal Mail meter data center 184. At the Royal Mail data center 184 the data will be stored and in turn forwarded to the Royal Mail meter payment data center 185, which notifies the Royal Mail 181 to continue to deliver the mail to the recipient 183. At the same time, the Royal Mail data center 184 notifies the United States postal service meter data center 132 of the confirmation of delivery of the mail and the United States postal service meter data center 132 can provide mail tracking information to the original sender. The Royal Mail data center 184 will inform the Royal Mail Payment center 185 that the mail is in the United Kingdom, and that it will receive funds from the United States meter payment data center 170. The Royal Mail meter

payment center 185 accumulates funds and periodically sends the funds to the United Kingdom carrier bank 187 and/or the Royal Mail bank 186.

[034] The above specification describes a new and improved method for paying for international mail. It is realized that the above description may indicate to those skilled in the art additional ways in which the principles of this invention may be used without departing from the spirit. Therefore, it is intended that this invention be limited only by the scope of the appended claims.